Surgical Wedge Resection of Endometriosis Lesion through Video-Assisted Thoracoscopic Approach in a Patient with Catamenial Pneumothorax: An Uncommon Case Study

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Abstract

Introduction : Catamenial pneumothorax denotes the occurrence of spontaneous and recurrent lung collapse, specifically taking place during the menstrual period. Roughly 3-6% of cases are classified as catamenial pneumothorax and typically align with menstruation. Additionally, 25% to 30% of these cases require surgical intervention.

Abstract

Case presentation :

A **39-year-old female patient** presented with complaints of shortness of breath during menstruation and improved on her own, the patient was brought to the health centre because the complaints felt heavier than usual and was given oxygen therapy then the shortness was felt to improve. This **complaint appears every month during mensturation**. Surgically performing a wedge resection on the right superior lobe to remove endometriosis lesions through Video-Assisted Thoracoscopic Surgery (VATS) reduces the recurrence of pneumothorax symptoms in this patient.

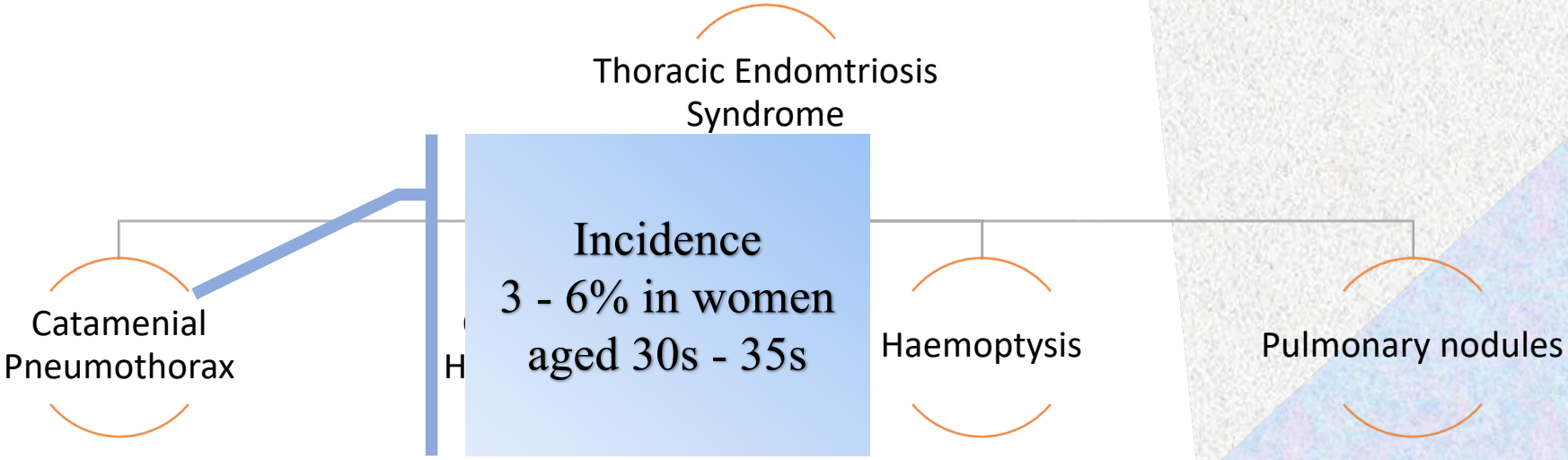
Abstract

Discussion :

Catamenial pneumothorax is a spontaneous pneumothorax that occurs 24 to 72 hours before or after the onset of menstruation. Catamenial pneumothorax in almost all cases is unilateral on the right side and can be recurrent. Endometrial tissue can reach the thoracic cavity as in theory through diaphragmatic defects, blood and lymphatic vessels.

Introduction

Catamenial pneumothorax is a **spontaneous** and **recurrent pneumothorax** that occurs in women of childbearing age within **24 to 72 hours before** and **after** the onset of **menstruation**.



Introduction

Most commonly **unilateral (85-95%)**

Need **at least two recurrence** of events

Commonly **associated** with **endometriosis**-related **cystic fibrosis**

Recurrence is **related** to the **timing** of **menstruation** (25%)

Cont'

Pathogenesis

- The exact pathogenesis is unknown
- Systemic immune changes are believed to be associated with ectopic endometrial tissue.

Etiology

- Migratory, metastatic microembolic, and diaphragmatic pathway theories.

Symptoms

- Typical of spontaneous pneumothorax

Treatment

- Pharmacology: Supression of endometrial activity; progestogens, gonadotropin analogs
- Surgical

Case Ilustration

Patient Information	Age: 39-year-old female (Mrs. D)
	Presented to RSUD Dr. Soetomo's emergency room on December 18, 2022.
	Referred from RSUD Magetan.
	Chief complaint: Shortness of breath occurring monthly during menstruation, improving spontaneously.
	History of similar complaints in March and September 2022, with the need for oxygen therapy in March.
	Previously treated at Public health center.

Case Ilustration

Medical History

- Patient had history of endometriosis
- No history of previous chest tube insertion.
- No history of prolonged cough, fever, or consumption of TB drugs.
- No current fever, nausea, or vomiting.
- Denied any history of previous illness.

Case Ilustration

Current Status

Fitted with a **right chest tube** at **RSUD Dr. Soetomo after referral**.

Shortness of breath has decreased since the intervention.

The **patient is conscious**, short of breath, but **able to communicate well.**

VITAL SIGNS	
Blood Pressure	122/84 mmHg
Pulse	89 x/min, regular
Respiratory Rate	20 x/min
SpO2	97%

Case Ilustration

Physical Examination & Laboratory findings

- Symmetrical chest movement (+)
- Vesicular respiratory sounds on both chests
- No ronkhi, no wheezing

haemoglobin: 13.6

WBC: 9510,

Platelets: 378000, OT/PT: 19.7/31.3,

Albumin: 5.13,

BUN/Cr: 12.3/0.62,

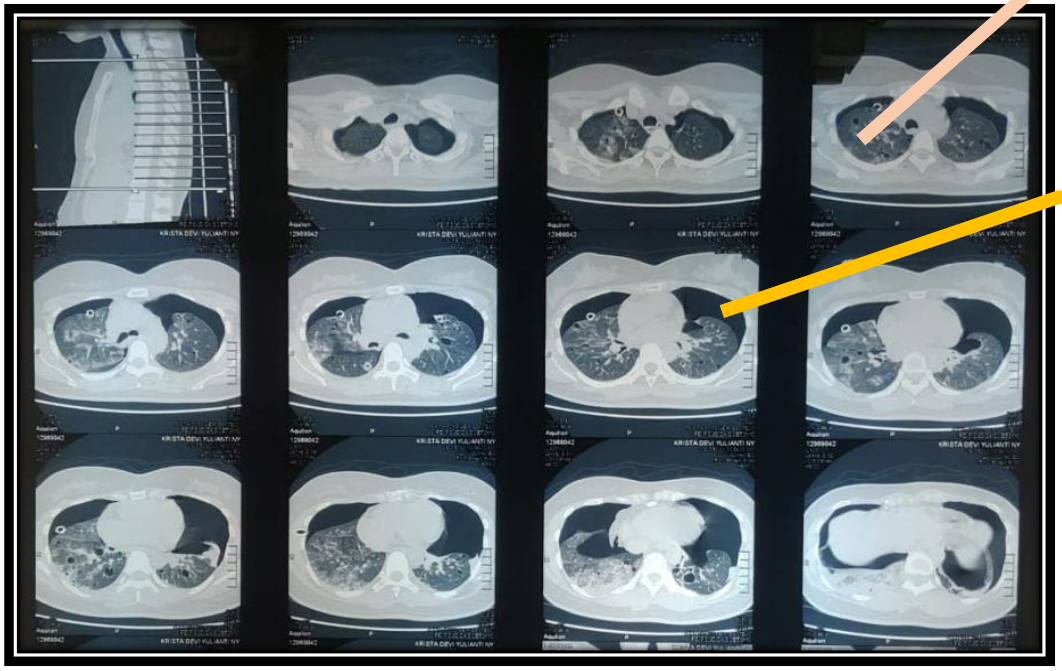
BG: 84,

CRP: 1.1,

Electrolyte; Na/K/Cl: 138/3,9/103.

Case Ilustration

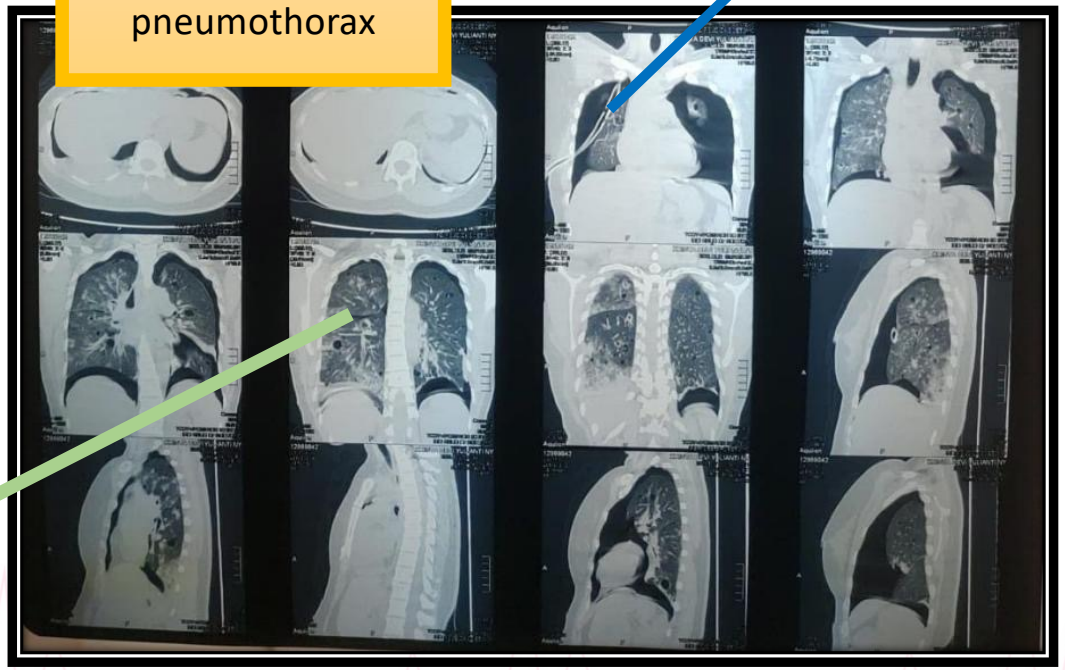
CT-Scan imaging



Bilateral Lung colapse

Chest tube

Bilateral pneumothorax

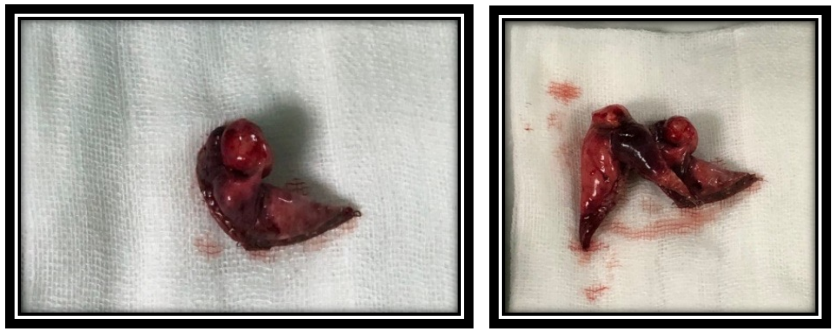


Bronchopleural fistula

Case Ilustration

Management

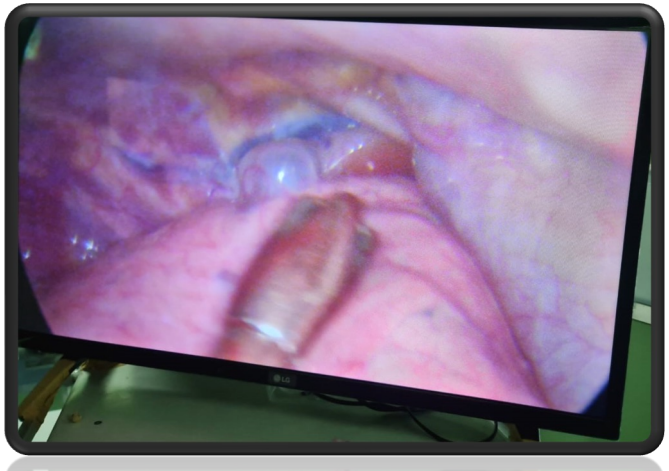
- Video assisted Thoracoscopy (VATS)
- Wedge resection of right superior lobe
- Wedge resection of right inferior lobe
- BPF repair of the right medius lobe
- Mechanical pleurodesis
- Insertion of chest tube 24Fr on the right lung
- Resected tissue was evaluated for Pathological anatomy examination

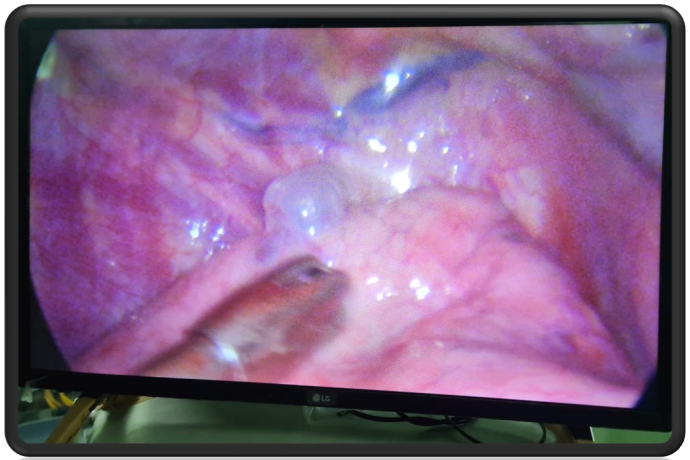


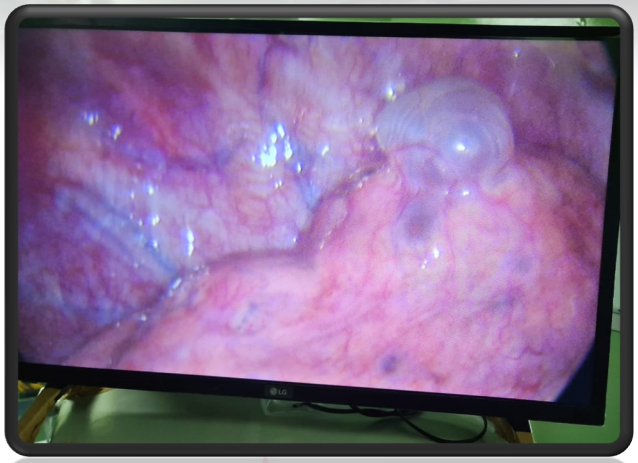
Resected right superior lobe showing endometrial tissue

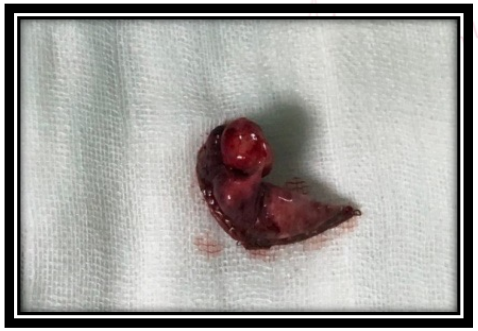
Case Ilustration

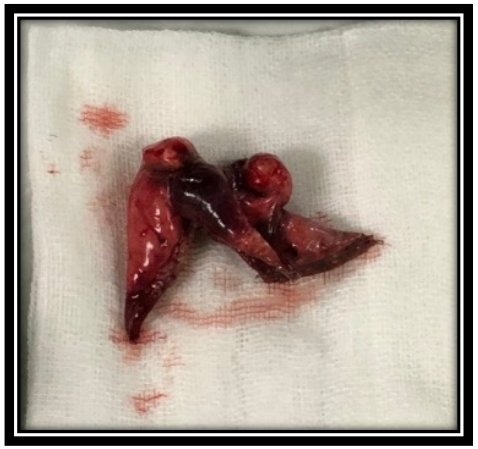
Lung resection with VATS











A bullae was found on the right superior lobe, with several reddish spots suspected as endometrial tissue

Resected right superior lobe showing endometrial tissue

Case Illustration

Post Surgery Follow Up

Patient is fully conscious

Vital signs

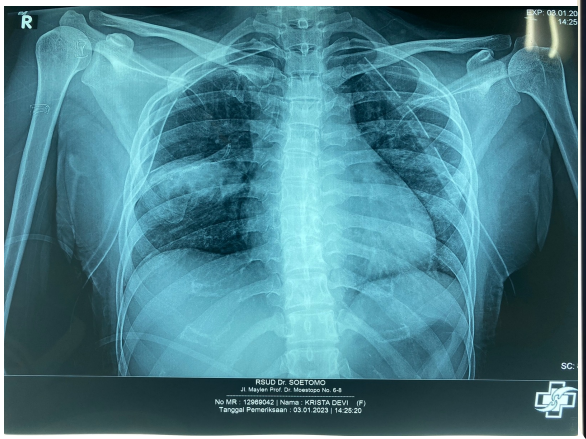
- Blood Pressure: 102/75 mmHg
- Pulse: 88 x/min
- Respiratory Rate: 20 x/min
- Oxygen Saturation: 98%

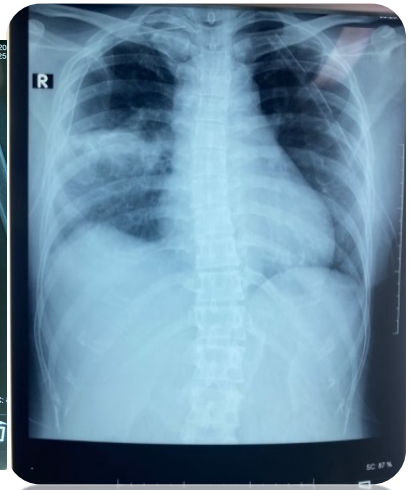
Physical Examination

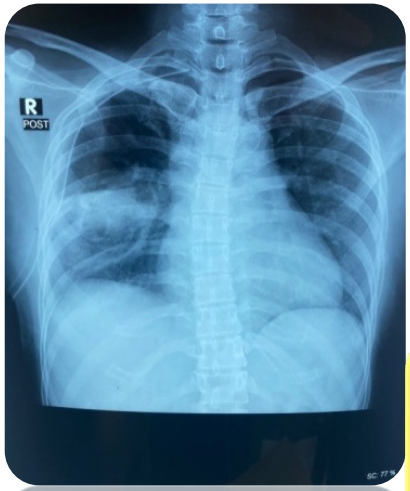
- Symmetrical movement of the chest wall.
- Vesicular respiratory sounds in both thoraxes without Ronchi and wheezing.
- Normal bowel noise.
- Extremity appear normal, no pallor, CRT less than 2 seconds

Case Ilustration

Imaging and Treatment Plan







No complication found on follow up X-ray examination
Chest tube installed without severe complications.

Post VATS incision wound follow up

- Wound appears good.
- Impression still wet.
- No pus, seroma, slough found.
- No tenderness or redness of the skin.

Future treatment plan

- Patient is planned to be treated in collaboration with the obstetric and gynaecological department for **hormonal therapy.**

Discussion

Thoracic endometriosis can occur through unclear etiopathogenesis.

Theories: physiological (prostaglandin F2 during menstruation),

migration (endometrial cells migrating to diaphragm),

metastasis-microembolism (pulmonary metastasis), and diaphragmatic route.

Main symptoms:

- shortness of breath,
- chest pain, and
- severe abdominal pain during the menstrual cycle
- Pleuritic pain commonly occurs on the right side
- almost always unilateral on the right side
- Endometrial tissue can reach the thoracic cavity through diaphragmatic defects, blood, and lymphatic vessels

Symptoms appear 1-2 days before the menstrual cycle.

And occurring repeatedly

Discussion

Water-sealed drainage and Video-Assisted Thoracoscopic Surgery (VATS) were given.

- The main goal is lung re-expansion.
- ACCP guidelines recommend chest tube drainage as the primary choice for spontaneous pneumothorax.

Surgery for Catamenial Pneumothorax:

- Surgery is the gold standard for catamenial pneumothorax therapy, reducing recurrence.
- Usually performed when conservative treatment with hormonal therapy fails.
- Minimally invasive approach with VATS is considered appropriate.

Invasive Procedures to Prevent Recurrence:

- Procedures include thoracoscopy with talc poudrage, VATS with pleurectomy (partial) or talc poudrage, thoracotomy with partial or complete pleurectomy.
- Limited studies comparing VATS and other surgical procedures.

Conclussion

Catamenial pneumothorax is a spontaneous pneumothorax that occurs 24 to 72 hours before or after the onset of menstruation. This pneumothorax commonly **affects women of reproductive age** and is **associated with endometriosis**. Clinically, patients will complain of pneumothorax generally every time they enter menstruation and improve after menstruation. Comprehensive management and follow-up surgical therapy is required if there is recurrent pneumothorax.

THANK YOU